



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,396	10/07/2003	Adrian Carter	6548-23-IU	5974
38731	7590	02/15/2008		
NUFERN Peter J. Rainville 7 AIRPORT PARK ROAD EAST GRANBY, CT 06026			EXAMINER HOFFMANN, JOHN M	
			ART UNIT 1791	PAPER NUMBER
			NOTIFICATION DATE 02/15/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

hsamson@nufern.com  
prainville@nufern.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/680,396	<b>Applicant(s)</b> CARTER ET AL.	
	<b>Examiner</b> John Hoffmann	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/22/2008 has been entered.

### ***Claim Rejections - 35 USC § 112***

Claims 1-6 and 9-12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for voids that have gas, does not reasonably provide enablement for those voids that are empty. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The MPEP sets forth what must be considered to establish whether the enablement requirement is met.

#### **2164.01(a) Undue Experimentation Factors**

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;

Art Unit: 1791

- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

Examiner's consideration of the factors is as follows:

Factor A: Examiner finds that such does not support a conclusion of non-enablement.

Factor B: Examiner finds that such does not support a conclusion of non-enablement.

Factor D: One of ordinary skill would understand the following: Sintering/consolidation of porous glass preforms involve heating the preform so that porosity is reduced generally due to surface tension at the microscopic level. The temperature is such that the material can shrink, but it does not generally deform due to force - such as gravity. On the other hand, drawing is done at a substantially higher temperature, so that the glass is less stiff, and a fiber can be drawn, often first by heating to let some glass to drip off, then by tension to draw the trailing glass. See for Example Blankenship 3932162 as representative of typical practice: Blankenship (col. 6, lines 1-7) teaches consolidation (sintering) occurs at 1250 to 1700 C – and preferably at 1400-1500 C; at col 8, lines 55- 68 there is disclosure of sintering in the middle of the preferred 1400-1500 range, and then drawing the fiber at 1800 C (i.e. 350 C higher than the sintering temperature).

A later Blankenship patent 4251251 points out that use of a vacuum greatly facilitates closure of apertures (col. 8, lines 38-44). This is actually common sense. If there is a higher pressure (i.e. atmospheric) outside a pliable body, and a lower

Art Unit: 1791

pressure inside. The pressure differential would cause the pliable body to deform inward.

Factor C: The prior art suggests that the invention would not work. Present claim 1 requires voids that are empty or comprise a gas: this means the voids can be devoid of gas (i.e. a vacuum). Claim 1 also indicates that they "remain" in the drawn fiber. This tends to contradict the Blankenship '251 disclosure that says aperture shrinkage is greatly facilitated. Especially when one considers that a typical drawing step is around 350 C higher than a typical sintering step. It is further noted that the above cited portion of Blankenship '162 has draws the 2.2 cm preform to 0.035 cm - that is a 98.5% reduction in size. In other words: the glass is soft enough to permit a 98.5% reduction in size.

Factor E: Examiner finds that such does support a conclusion of non-enablement. The level of predictability is rather high. One would reasonably predict that the comparative external pressure and the heated/softened glass would cause the glass to collapse. Examiner further notes US Patent 5802236 to DiGiovanni: which has longitudinal voids. As per col. 4, lines 19-25: closed voids which have gases in them, maintain their pressure during the draw step. But those exposed to the atmosphere are readily collapsed. That is, even when there is no pressure differential to drive collapse, the voids still collapse.

Art Unit: 1791

Factor F: The guidance does not appear to be sufficient. [0063] refers to imperfect sintering by reducing the sintering temperature. One would understand that incomplete sintering would result in voids. So using the Blankenfield example, perhaps at 1350 C the sintering would be incomplete. However the preform would still have to be heated to the drawing temperature, far above the sintering temperature - at least 350 C higher. The glass is clearly soft enough to reduce the diameter by 98.5%. Any incomplete sintering would be completed by the much higher temperature, and the pressure differential.

To summarize: there is only guidance for making a preform with empty voids. There is no guidance for how to retain the voids – as required by the claims

Factor G: Examiner finds that there is no working examples of retaining empty voids.

Factor H: Examiner finds that such supports a conclusion of non-enablement. It is clear that there are numerous glass compositions, different deposition parameters (including type of burner, flame temperatures, precursor type, precursor flow rates, burner movement rates), partial sintering conditions (including atmosphere composition, pressure, temperatures, duration of sintering), and fiber draw conditions (temperatures, fiber diameters, pressures). Not to mention void sizes - and making the determination whether the voids were actually empty. Thus, given all of the variables that may or may not be relevant, it would take a huge amount of experimentation to make and use the invention.

After weighing of all of the factors (especially those that suggest the invention would not work) examiner finds the factors that tend to show the “empty” voids aspect of the invention would not be enabled.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, and 9-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is simply not understood. Line 8 requires providing a second glass article for providing one of at least a portion of the core, but then line 11 indicates that the step of providing does not have include the providing. Or to look at it another way: there is confusing antecedent basis for "providing" of line 12 (i.e. if it is one the other providing steps or a new one), confusing antecedent basis for “said core being surrounded by the cladding”, and "the cladding" of line 6.

The claims refer to a "cladding", but such is not shown (or at least identified by a number or symbol) in the drawings. [0056] of the specification refers to feature 34 as being an “inner cladding layer” . [0042] instead calls it an “inner cladding”, but [0039] states it is a “multimode cladding layer”. Number "36" is call at least two names: “second cladding” and “second cladding layer”. The two portions mentioned of the claims are nowhere identified in the drawings. One of ordinary skill understands that a cladding is often made of plural cladding layers. Applicant's confusing usage of different

Art Unit: 1791

terms for the same drawing features, as well as the lack of other claimed items being shown in the drawings makes the claims impossible to understand. As best as examiner can tell, the claims do not follow the tenet of claim construction that different words used in different used in different claims are presumed to have different meanings. *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971-72, 50 USPQ2d 1465 (Fed. Cir. 1999) (recognizing “the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.”).

Claim 1: line 7 – there is no antecedent basis for “the optical fiber preform” – although the preamble refers to such a preform, there is no indication as to where it is made. Line 14: there is no antecedent basis for “the cladding”.

From MPEP 2173.05(h):

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being “selected from the group consisting of A, B and C.” See *Ex parte Markush*, 1925 C.D. 126 (Comm’r Pat. 1925).

Presently, claim 3 has a group which is very similar to the above accepted form, but there is no indication that the group is “consisting of” the members. Therefore it is impossible for anyone to tell if applicant’s group is open or closed to additional members - and thus the claim presents uncertainty or ambiguity with respect to the question of scope of the claim. If the above “acceptable form” is not desirable for Applicant, Examiner can be telephoned for other expressions.



Claim 3: line 7 – there is no antecedent basis for “the optical fiber preform” (line 7). Line 8 there is no antecedent basis for “the cladding” – it is unclear where it is created. As with claim 9, the second providing step requires one at least a portion of a core as well as the different portion, but the last three lines of the claim indicates that the second article does not provide a portion of the core - thus it does not make sense.

Claims 2 and 4 and 6 and 10: there is no antecedent basis for “the preform” – none is ever explicitly made. Thus it is unclear if claims 1 and 3 and 5 and 9 require making the preform.

Claim 5: line 14: there is confusing antecedent basis for “said layer”.

Claim 11, line 4: there is no antecedent basis for “the article for forming a first part of the cladding”. Line 9: there is no antecedent basis for “the same cladding” - it is unclear if it is the “first part” or something else.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “cladding”, “first sintered layer”, “different sintered layer”, “different layer of soot”, the “layer of soot” which is not the “different” one, the “different portion of the cladding”, the “portion of the cladding” which isn’t the “different” one, the “second cladding” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

Art Unit: 1791

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5-6 and 11 and 1-2 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Zhang 6192713.

See the prior Office action for the manner in which Zhang was applied.

As to the new “so as to contribute” limitation: Examiner finds this to be an intended use limitation. Nowhere does the claim require a step of forming truncated regions, thus the plain reading is that such relates only to those situations where the fiber is drawn in a manner in which there are any truncated regions. Zhang has no truncated regions. It is deemed that the voids remain for at least some brief period of time. Zhangs collapsing step yields the "providing a core step". It is deemed that the innermost layer of the core, can be a core - just as present specification refers to 34 to be a “cladding layer” as well as a “cladding”. One can reasonably construe a “core layer” to be a “core”.

Claim 1-6 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipate by Evans 5925163 (with Kirkbir 5254508 and Eaton 3904422 to show inherency).

See the previous art rejection for how Evans was previously applied. As indicate above, one would reasonably expect to have some voids/bubbles (i.e. at least two) in the preform layers.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

Art Unit: 1791

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9-10 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang 6192713 in view of Baumgart 4820322.

See above and the prior Office action.

### ***Response to Arguments***

Applicant's arguments filed 1/22/2008 have been fully considered but they are not persuasive.

It is argued that the new language regarding the remaining of the voids addresses Examiner's concern. Examiner does not see how the changes to the claims define over the prior art – that is how the claim language precludes subsequent complete sintering – nor do the arguments point such out.

As to the assertion that examiner finds “core” and “cladding” to be interchangeable. Examiner did not intend to make such an assertion. Rather the rejection is based on the broadest reasonable interpretation of the present claims: namely the terms “core” and “cladding” are not used in a manner in the present application which would preclude Zhang's any of composition from be used as core and/or a cladding. This is NOT to be interpreted as saying that such usage is disclosed or would have been obvious. Rather, that the present claims merely use the language as intended use. One could use Zhang's glass in that intended manner, if one wanted to.

It is argued that a cladding must clad, and that Zhang's core does not do this. First there is no evidence to support this argument. Second, as indicated above, applicant uses the term “cladding” and “cladding layer” interchangeably - and thus is indicating that the term "cladding" is not overly limiting. Third, the term "cladding tube" is well understood to mean a tube which is to be used to clad, but doesn't necessarily

Art Unit: 1791

require to be clad. For example see Berkey 5149349 which refers to cladding tube 47 of figure 6: col. 7, lines 43-44. Since applicant's "cladding layer" can be a "cladding" – it is reasonable to assume a "cladding tube" can be a "cladding" even if it doesn't clad something. Rather the term "cladding" is used to signify its intended use. Much like a bicycle wheel can still be call a bicycle wheel, even if it is never part of a bicycle. Most importantly, since the preamble sets forth the process is for making a cladding, it is reasonable to infer that only the cladding needs to be created.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Hoffmann  
Primary Examiner  
Art Unit 1791

jmh/John Hoffmann/  
Primary Examiner, Art Unit 1791